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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.       |
|--|-------------|----------------------|---------------------------------|------------------------|
| 10/715,123   | 11/17/2003  | Frederick Vosburgh   | 9372-2                          | 2761                   |
| 20792 7590 09/20/2007<br>MYERS BIGEL SIBLEY & SAJOVEC<br>PO BOX 37428<br>RALEIGH, NC 27627 |             |                      | EXAMINER<br>KURR, JASON RICHARD |                        |
|  |             |                      | ART UNIT<br>2615                | PAPER NUMBER           |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/715,123

Applicant(s)

VOSBURGH ET AL.

Examiner

Jason R. Kurr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7,9,11-18,23 and 37-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,11-18,23,37-48 and 51 is/are rejected.
- 7) ☒ Claim(s) 49 and 50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

Claims 8, 10, 19-22 and 24-36 have been cancelled and will not be considered by the Examiner.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-7 and 9 as currently presented are method claims that depend on claim 41, which is a device claim. This renders claims 1-7 and 9 as indefinite because a method claim may not depend upon a device claim. Regarding claims 1-7 and 9, a single claim, which claims both an apparatus and the method steps of using the apparatus, is indefinite under 35 U.S.C. 112, second paragraph. In *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), a claim directed to a device and a method of using the device is held to be ambiguous.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7 and 9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

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Claims 1-7 and 9 disclose a device and a method of using the device. This is non-statutory subject matter because the claimed invention is directed to a method and a device, wherein a patent may be obtained when claimed invention is a device or a method. The claim is directed to neither a "process" nor a "machine", but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-18, 24 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Algazi et al (US 2004/0076301 A1) in view of Barker (US 4,638,410).

With respect to claim 11, Algazi discloses a device for generating a directional sound environment, the device comprising: a headgear unit (pg.9 [0091]); a microphone positioned on the outer surface of the head gear unit (fig.1 #14, pgs.3-4 [0029]); and a speaker positioned in an interior of the headgear unit (fig.1 #20,22), wherein the microphone is configured to receive a sound signal and the speaker is configured to generate sound inside the headgear unit (pg.4 [0031]).

Algazi does not disclose expressly wherein the headgear unit comprises a pinna positioned on an outer surface of the headgear unit.

Barker discloses a diving helmet wherein pinna (fig.1 #23) are positioned on the outer surface of the headgear unit for the purpose of mounting a toggle switch (col.2 ln.9-17).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the pinna of Barker on the diving helmet of Algazi.

The motivation for doing so would have been to mount the microphones of Algazi within recesses so as to prevent the microphones from protruding from the helmet. This would help to protect the microphones from being damaged during use.

With respect to claim 12, Algazi discloses the device of claim 11, wherein the device further comprises a processor (fig.1 #16) configured to apply a transfer function to the received sound signal to provide a transformed sound signal, the transformed sound signal providing an approximation of free field hearing sound at a subject's ear inside the headgear unit (pg.6 [0058-0061]).

With respect to claim 13, Algazi discloses the device of claim 12, wherein the transfer function is based on an experimentally determined propagation effect from sound propagating to an opening of an ear canal and substantially omitting propagation interference from the headgear unit (pg.6 [0058-0061]).

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With respect to claim 14, Algazi discloses the device of claim 12, including a plurality of microphones positioned at locations on the headgear unit, the locations being selected to provide sufficient sound information to provide an approximation of free field hearing sound (pgs.3-4 [0029]).

With respect to claim 15, Algazi discloses the device of claim 12, wherein the processor is further configured to reduce an amplitude of a portion of the sound signal if the amplitude is higher than a threshold level (pgs.6-7 [0066-0067]). As the position of the listener's head changes the amplification coefficient  $w$ , changes accordingly which results in either an increase or decrease in the signal input from a respective microphone.

With respect to claim 16, Algazi discloses the device of claim 12, wherein the processor is further configured to cancel the amplitude of a portion of the sound signal (pgs.6-7 [0066-0067]). Algazi discloses that the coefficient  $w$  can be within a range of 0 to 1. If  $w = 0$ , this would result in a canceling of the amplitude of a sound signal from one of the microphones.

With respect to claim 17, Algazi discloses the device of claim 12, wherein the headgear unit comprises a helmet (pg.9 [0091]).

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With respect to claim 18, Algazi discloses the device of claim 11, wherein the headgear unit is substantially soundproof in a frequency range. It is implied that a diver's helmet acts as a passive sound canceller, which is **substantially** sound proof within a frequency range.

With respect to claim 23, Algazi discloses the device of claim 19, wherein the processor is further configured to cancel the amplitude of selected sound signals (pgs.6-7 [0066-0067]). Algazi discloses that the coefficient  $w$  can be within a range of 0 to 1. If  $w = 0$ , this would result in a canceling of the amplitude of a sound signal from one of the microphones.

With respect to claim 37, Algazi discloses the device of claim 11, wherein the pinna approximates the shape of a human ear (Barker: fig.1 #23)(See "Response to Arguments").

With respect to claims 38, 41 and 42, Algazi discloses the device of claims 37, 40 and 11, respectively, however does not disclose expressly wherein the earphones (fig.1 #20,22) are of the in-ear type. Official Notice is taken that in-ear type headphones/earphones are well known in the art and at the time of the invention it would have been obvious to a person of ordinary skill in the art that in-ear type earphones could be substituted for the headphones of Algazi. The motivation for doing so would have been to use an easily detachable headphone system that is not mounted



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within the structure of the helmet itself. This would allow use of the system in different modes, one with an active sound system and one without, wherein the headgear is ultimately reduced in weight when it is desired to be used without an active sound system.

With respect to claim 39, Algazi discloses the device of claim 37, wherein the pinna approximates the shape of an average human ear (Barker: fig.1 #23).

With respect to claim 40, Algazi discloses the device of claim 37, wherein the pinna approximates the shape of an ear of an individual intended to wear the headgear unit (Barker: fig.1 #23)(See "Response to Arguments").

With respect to claim 43, Algazi discloses a method for generating a directional sound environment, the method comprising: providing a device including: a headgear unit (pg.9 [0091]); a microphone positioned on the outer surface of the headgear (fig.1 #14, pgs. 3-4 [0029]); and a speaker positioned on an interior of the headgear unit (fig.1 #20,22); detecting a sound signal from the microphone; and generating sound inside the headgear unit from the speaker (pg.9 [0091]).

Algazi does not disclose expressly wherein the headgear unit comprises a pinna positioned on an outer surface of the headgear unit.



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Barker discloses a diving helmet wherein pinnae (fig.1 #23) are positioned on the outer surface of the headgear unit for the purpose of mounting a toggle switch (col.2 ln.9-17).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the pinna of Barker on the diving helmet of Algazi.

The motivation for doing so would have been to mount the microphones of Algazi within recesses so as to prevent the microphones from protruding from the helmet. This would help to protect the microphones from being damaged during use.

With respect to claim 44, Algazi discloses the method of claim 43, wherein the pinna approximates the shape of a human ear (Barker: fig.1 #23).

With respect to claims 45, 48 and 51, Algazi discloses the methods of claims 44, 47 and 43, respectively, however does not disclose expressly wherein the earphones (fig.1 #20,22) are of the in-ear type. Official Notice is taken that in-ear type headphones/earphones are well known in the art and at the time of the invention it would have been obvious to a person of ordinary skill in the art that in-ear type earphones could be substituted for the headphones of Algazi. The motivation for doing so would have been to use an easily detachable headphone system that is not mounted within the structure of the helmet itself. This would allow use of the system in different modes, one with an active sound system and one without, wherein the headgear is

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ultimately reduced in weight when it is desired to be used without an active sound system.

With respect to claim 46, Algazi discloses the method of claim 44, wherein the pinna approximates the shape of an average human ear (Barker: fig.1 #23).

With respect to claim 47, Algazi discloses the method of claim 44, wherein the pinna approximates the shape of an ear of a specific individual intended to wear the headgear unit (Barker: fig.1 #23).

### ***Response to Arguments***

Applicant's arguments filed June 26, 2007 have been fully considered but they are not persuasive.

With respect to claim 11, the Applicant argues that Barker does not disclose a headgear unit including a pinna, and that the proposed motivation is not suggested by or apparent from the cited art because a switch as described by Barker and a microphone are not simply interchangeable in this context. The Examiner disagrees with the Applicant's assertion that Barker does not teach a pinna on the headgear unit. The Examiner has interpreted the recess (fig.1 #23) of Barker as an earlike structure or pinna. The present claim does not limit the function of the claimed pinna other than having a microphone adjacently positioned to it. Therefor the Examiner is free to broadly interpret the term pinna in any manner consistent with the term. Thus the

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recess of Barker is considered to be a pinna. Barker teaches that the recess #23 protects/prevents the switch #21 from undesirable toggling by sequestering the switch from the headgear's surface. The Examiner maintains that it would be obvious to mount the microphones of Algazi within recesses on the surface of the recording object, so as to protect them from external damage. The function of the recesses would be the same, to prevent external objects from interfering with the functioning of the switch/microphone.

With respect to claim 37, the Applicant argues that Barker's pinna does not "approximate the shape of a human ear". Does this include a lobe, eardrum or trachea? The present claim does not limit the degree as to what approximates the shape of a human ear. Therefor the recess of Barker "approximates" the shape of a human ear.

With respect to claim 40, the claim reads "wherein the pinna approximates the shape of an ear of an individual intended to wear the headgear unit". Once again the present claim does not limit the degree as to what approximates the shape of a human ear nor does it disclose any customization for the intended user because it merely approximates the shape of an ear.

### ***Allowable Subject Matter***

Claims 49-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Steelman (US 6,101,256) discloses a self-contained helmet communication system.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JK  
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